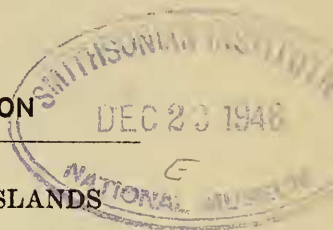


PROCEEDINGS  
OF THE  
BIOLOGICAL SOCIETY OF WASHINGTON



THE SPINY RATS OF THE RIU KIU ISLANDS

By DAVID H. JOHNSON\*

The name *Rattus jerdoni osimensis* was proposed by Abe in 1933 for a remarkable new rodent from Amami-Osima, Riu Kiu Islands. In 1941 Tokuda showed that this form was quite distinct from the Indian *Rattus jerdoni* and proposed for it the generic name *Acanthomys*. As the latter name has been used previously, a new name is required for the genus. Heretofore these rats have been recorded only from Amami-Osima. In the course of epidemiological surveys made in September, 1945, by U. S. Naval Medical Research Unit No. 2, specimens representing a new subspecies were trapped in the northern part of Okinawa Island. The taxonomy of this group is rearranged to stand as follows:

Genus *Tokudamys* (new name)

*Rattus* (part), Abe, Shokobutsu oyobi Dobutsu (Botany and Zoology), vol. 1, p. 942, July 1, 1933; Jour. Sci. Hiroshima Univ., ser. B, div. 1, vol. 3, p. 107, December, 1934 (*nec* G. Fischer, Das Nationalmuseum der Naturgeschichte zu Paris, vol. 2, p. 128, 1803).

*Acanthomys* Tokuda, Biogeographica (Trans. Biogeog. Soc. Japan), vol. 4, p. 93, December, 1941 (genotype, *Rattus jerdoni osimensis* Abe). Preoccupied by *Acanthomys* Lesson, Nouveau Tableau du Regne Animal, p. 135, 1842 (genotype not designated, applied to five species of murine rodents).

*Genotype*.—*Rattus jerdoni osimensis* Abe.

*Remarks*.—To the generic characters given by Tokuda (*loc. cit.*) for "*Acanthomys*," I would add, from observation of Okinawan specimens, that the mammary formula is  $0 - 2 = 4$ , that the posterointernal cusp and a posteroexternal heel are present in  $M^1$  and  $M^2$ , and that  $M^2$  lacks an anteroexternal cusp.

*Tokudamys osimensis osimensis* Abe

*Rattus jerdoni osimensis* Abe, Shokobutsu oyobi Dobutsu (Botany and Zoology), vol. 1, p. 942, July 1, 1933 (in Japanese); Abe, Jour. Sci. Hiroshima Univ., ser. B, div. 1, vol. 3, p. 107, December, 1934 (in English); Kuroda, List of the Japanese mammals, p. 67, June, 1938; Kuroda, Monograph of the Japanese mammals, p. 137, 1940 (in Japanese).

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*Rattus fulvescens osimensis*, Ellerman, Families and genera of living rodents, vol. 2, p. 193, March 21, 1941.

*Acanthomys osimensis*, Tokuda, Biogeographica (Trans. Biogeog. Soc. Japan), vol. 4, p. 95, December, 1941.

*Type specimen*.—Not designated. Abe's description was based on "several specimens" (10 are itemized in a table of measurements) collected by S. Ueki between April and June 15, 1933.

*Type locality*.—Village of Sumiyo, Anami-Osima, Riu Kiu Islands. Apparently no further locality records have been published.

*Specimens examined*.—None.

***Tokudamys osimensis muenninki*, new subspecies**

*Type specimen*.—U. S. National Museum, No. 278757, adult female, skin and skull; collected September 24, 1945, by David H. Johnson and Odis A. Muennink, original No. 479 (D. H. J.).

*Type locality*.—Hentona, western coast of northern Okinawa Island, Riu Kiu Islands.

*Diagnosis*.—Similar to *T. o. osimensis* but larger (length of head and body of adult male near 150 rather than 125 mm.; greatest length of skull near 40 rather than 36 mm.); tail relatively shorter (equal to about 73 rather than 87 per cent of head-and-body length); feet lacking dark extensions of body color on metapodial areas.

*Description*.—General external appearance like that of a large vole; body appearing short and thick (this impression enhanced by unusually thick pelage). Pelage composed of fine hairs mixed with coarse, flattened, grooved spines, the latter present and predominating everywhere except on tail, feet, ears, and area about mouth; spines on midback about 21 mm. long, those on belly about 11 mm. Color of upper parts a mixture of black and Ochraceous-Tawny (capitalized terms are from Ridgway, Color standards and color nomenclature, 1912); underparts grayish white, very faintly washed with ochraceous; individual hairs on back and sides gray with Ochraceous-Tawny tips; spines gray at base with distal parts either black or Ochraceous-Tawny with a minute black tip; black spines predominating at midback, ochraceous predominating on sides of body; spines on belly grayish white. Backs of fore and hind feet near Pinkish-Buff, metapodial areas lacking any indication of darker body color. Tail averaging about 73 per cent as long as head and body; bicolored, scales and hairs blackish above and grayish white below; scales in approximately 115 annular rows, averaging 8 rows per centimeter near base of tail; each scale subtending three hairs about 2.5 mm. long. Toes slender and distinct; forefoot with first toe apparently functional (its claw resembling a miniature hoof), and with claw of fifth toe extending to base of second phalanx of fourth toe; hind foot with sole bare to heel, claw to first toe reaching base of second phalanx of second toe, claw of fifth toe reaching middle of second phalanx of fourth toe. Ears subovate, moderately hairy inside and out. Vibrissae long, reaching well back to shoulder area; mostly black, those originating on cheeks whitish. Mammary formula: 0 — 2 = 4.

Skull angular and lightly built as compared with most species of *Rattus*. Rostrum prolonged, nasals extending about 3 mm. beyond in-

TABLE I  
External and cranial measurements in millimeters of specimens of *Tokudamys osimensis muenninki*

U. S. Nat. Mus. cata. log No.	Sex	Length of head and body	Length of tail	Length of hind foot (with claw)	Length of ear (from notch)	Greatest length of skull	Condylobasal length of skull	Zygomatic breadth	Length of nasals	Diastema	Length of incisive foramina	Length of upper molar series
278758	♂	175	---	36	25	42.4	38.3	19.5	18.3	11.3	7.9	6.2
279039	♂	145	116	37	24	---	---	---	---	---	---	---
278760	♂	144	114	34	24	41.4	37.0	18.1	17.0	10.6	8.6	6.4
278756	♀	158	114	37	22	40.8	36.6	17.0	17.7	10.3	7.8	6.4
278759	♂	149	104	36	23	39.7	35.7	17.6	17.1	10.6	7.6	6.1
278755	♀	151	119	36	---	39.6	35.2	16.9	16.0	10.4	7.6	6.1
278757	♀	166	108	35	24	41.2	36.6	19.0	17.3	10.2	8.6	6.1
(type)												
279040	♂	165	117	38	24	---	---	---	---	---	---	---
278761	♂	149	107	35	23	38.9	35.6	17.4	16.6	10.4	7.9	5.9
278763	♂	153	108	35	---	40.1	35.5	17.2	17.1	10.6	7.6	6.1
278762	♂	141	99	34	---	39.5	35.5	17.3	16.5	9.9	8.4	6.4
278752	♀	---	---	---	---	---	---	---	---	---	---	---
278754	♀	---	---	---	---	---	---	19.2	16.0	10.0	7.6	6.0
									17.0	11.2	8.7	

isors. Premaxillaries rising above level of nasals to form shallow trough near base of rostrum. Temporal ridges extended dorsolaterally on flange-like frontal processes, being thus raised above general frontal level in interorbital region, overhanging temporal fossae, and (in dorsal view) following almost straight divergent lines from premaxillary to occipital sutures. Maxillary part of zygomatic arch angular and prominent, squamosal part weak and adpressed to braincase. Incisive foramina broad, terminating opposite anterior root of M<sup>1</sup>. Palate narrow, terminating slightly posterior to M<sup>3</sup>, its posterior margin smoothly concave. Bullae small, recessed, little inflated. Mandible with weak coronoid process; articular process extending posteriorly beyond plane of angular process.

Upper incisors sharply recurved. Molars relatively high-crowned. M<sup>1</sup> with four roots (differing from *Rattus* in lacking external root beneath second lamina) and with anteroexternal cusp reduced; M<sup>2</sup> with this cusp absent. M<sup>1</sup> and M<sup>2</sup> each with a posterointernal cusp and an accessory posteroexternal cusp or heel. M<sub>1</sub> and M<sub>2</sub> each with two external accessory cusps.

*Measurements.*—See Table I.

*Specimens examined.*—A total of 13 (10 skins with skulls, 1 skull only, 2 in alcohol) including the type, all from the type locality, collected September 19-25, 1945.

*Remarks.*—The rats were all trapped along a three-mile stretch of trail that follows the crest of a ridge running westward from the main divide to the coast a half-mile north of Hentona. Here, as in most other parts of northern Okinawa, the terrain is mountainous and is covered with a dense forest, which on the exposed ridge-tops is reduced to a chaparral-like growth about ten feet high. Mixed with the shrubs in these places is a flourishing growth of coarse grass used by the Okinawans for thatching roofs. In some places the ground is covered with a knee-high mat of brake fern. Well beaten footpaths traverse the ridge-tops, and a network of temporary lateral trails has been made by thatch cutters. The most satisfactory bait was found to be a cube of raw sweet potato. The presence of the rats was first detected when a piece of spine-covered skin was found in a trail where it had apparently been discarded by some predator. This species was not found in the cultivated strip of rice fields and terraced sweet potato patches immediately adjacent to the coast.

The Okinawan subspecies is named for Odis A. Muennink of Hondo, Texas, who during the recent war collected more than a thousand specimens of animals for Naval Medical Research Unit No. 2 in various parts of the Pacific area.